And in a similar way I calculated the dips for all the stations, taking Utrecht first, because the dip found for Munich from this station gave a result differing from the mean the most of any; and then I treated Brussels in the same way, it being the next in order of discordance, and so on.

I thus formed Table III., giving the calculated dips, the observed dips with the local instruments and the Kew Circle, and the corrections for the Kew Circle.

TABLE III.

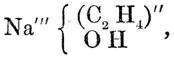
Stations.	Calculated Dips.	Dips observed with local instruments.	Dips observed with Circle from Kew.	Calcul.—Obs. with Kew Circle.
Kew	68° 1'·69	68° 2'·19	68° 3'·80	−2'·11
Greenwich ...	67 56·84	67 56·15	67 58·88	−2·04
Norwich......	68 15·50	67 17·86	68 17·86	−2·36
Brussels	67 4·12	67 11·00	67 6·77	−2·65
Utrecht	67 41·37	67 47·70	67 43·30	−1·93
Vienna	63 36·73	63 32·06	63 38·80	−2·07
Munich	64 6·70	....	64 7·70	−1·00
Paris	65 47·80	65 45·30	65 49·85	−2·05
			Mean	−2·03

This Table shows that the Circle from Kew gave at all stations the dip about 2' too large; and only for Munich this difference is but 1', which shows that the calculated dip for Munich is a little too large.

III. "On a New Class of Organo-metallic Bodies containing Sodium." By J. ALFRED WANKLYN, Professor of Chemistry in the London Institution. Communicated by Professor E. W. BRAYLEY. Received February 6, 1869.

Up to the present time organo-metallic bodies containing ethylene in union with the metal have been often sought, but never recognized.

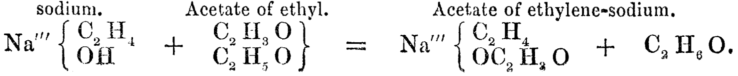
I have to announce the existence of organo-metallic compounds of ethylene with the alkali-metals. In ethylate of sodium, or at any rate in the substance which is produced by heating up to 200° C. the well-known crystals got by acting on alcohol with sodium, I see the hydrated oxide of ethylene-sodium—



$$Na''' \left\{ \begin{matrix} (C_2H_4)'' \\ OH \end{matrix} \right. ,$$

which, as I have recently shown, yields alcohol and a new compound on being heated with the ethers of the fatty acids: thus

Hydrate of ethylene-sodium. Acetate of ethyl. Acetate of ethylene-sodium.



$$Na''' \left\{ \begin{matrix} C_2H_4 \\ OH \end{matrix} \right. + \left. \begin{matrix} C_2H_3O \\ C_2H_5O \end{matrix} \right\} = Na''' \left\{ \begin{matrix} C_2H_4 \\ OC_2H_3O \end{matrix} \right. + C_2H_6O.$$

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Acetate of ethylene-sodium yields alcohol and common acetate of soda on treatment with water :—

$$2\left(\mathrm{Na}''' \left\{ \begin{matrix} C_2H_4 \\ OC_2H_3O \end{matrix} \right. \right) + 2H_2O = 2C_2H_6O + 2NaO\,C_2H_3O.$$

The extreme lightness of the so-called ethylate of sodium (it swims in ether) is a reason for regarding it as a compound belonging to a less condensed order of sodium-compound than ordinary sodium-compounds. The property of yielding up its olefine in the shape of alcohol when it is treated with water is a reason for assigning to the new compound given by the action of acetic ether the above formula, and shows that the olefine is associated with the alkali-metal, not with the acid.

IV. "On the Temperature of the Human Body in Health." By SYDNEY RINGER, M.D. (Lond.), Professor of Materia Medica in University College, London, and the late ANDREW PATRICK STUART. Communicated by Dr. BASTIAN. Received December 18, 1868.

(Abstract.)

These observations were conducted by the authors in order to learn with minuteness the fluctuations of the temperature in health. They were performed on persons of different ages, and were in many instances continued through the night and day.

The temperature was noted every hour, and on many occasions much more frequently.

The following subjects are discussed in this communication :—

1. The daily variation of the temperature.
2. The effects of food on the temperature.
3. The effects of cold baths on the temperature.
4. The effects of hot baths on the temperature.

From their observations and experiments the authors have drawn the following conclusions :—

The average maximum temperature of the day in persons under 25 years of age is 99°·1 Fahr.; of those over 40, 98°·8 Fahr.

There occurs a diurnal variation of the temperature, the highest point of which is maintained between the hours of 9 A.M. and 6 P.M. At about the last-named hour the temperature slowly and continuously falls, till, between 11 P.M. and 1 A.M., the maximum depression is reached. At about 3 A.M. it again rises, and reaches very nearly its highest point by 9 A.M.

The diurnal variation in persons under 25 amounts, on an average, to 2°·2 Fahr.; but in persons between 40 and 50 it is very small, the average being not greater than 0°·87 Fahr.; nay, on some days no variation whatever happens. In these elderly people the temperature still further differs